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**Current collector geometry and mixing in liquid metal electrodes**

RAKAN ASHOUR, DOUGLAS KELLEY, Univ of Rochester — Liquid metal batteries are emerging as an efficient and cost effective technology for large-scale energy storage on electrical grids. In these batteries, critical performance related factors such as the limiting current density and life cycle are strongly influenced by fluid mixing and transport of electrochemical species to and from the electrode-electrolyte interface. In this work, ultrasound velocimetry is used to investigate the role of negative current collector location on the induced velocity, flow pattern, and mixing time in liquid metal electrodes. Ultrasound velocity measurements are obtained at a range of operating current densities. Furthermore, a comparison between velocity profiles produced by current collectors with different sizes is also presented.

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